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SEPTEMBER, 1916

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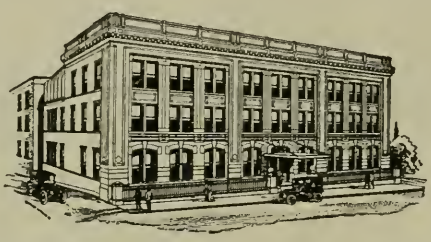

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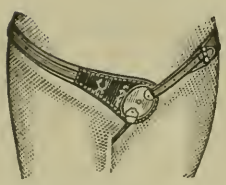

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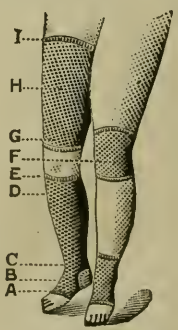

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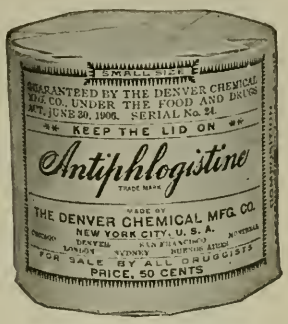
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THE TREATMENT OF EXTRA-UTERINE PREGNANCY.

By Aimé Paul Heineck, M.D.,
Professor of Surgery, Chicago College of Medicine and Surgery; Surgeon to Frances Willard, Jefferson Park and Douglass Hospitals.

EXTRA-UTERINE pregnancy is the condition which obtains in the female when a fertilized ovum is permanently arrested somewhere in its course from the ovary to the uterus, and undergoes development at this point of arrest or abnormal lodging place. The term ectopic has a broader meaning than extra-uterine, and refers not only to tubal and to ovarian pregnancies, but also to those cases in which the fertilized ovum lodges and develops in some abnormal diverticulum of the uterus.

This condition, on account of its practical problems, appeals to all members of the medical profession. It occurs far more frequently than is generally believed. It is often overlooked, often misdiagnosed. Inflammation and sepsis following a supposed miscarriage are often due to a ruptured extra-uterine pregnancy. Countless women can be saved from chronic invalidism, and many more from premature death, by recognizing this pathological entity in its early stages and by subjecting it to timely and adequate surgical intervention.

So continuously destructive is the action of the syncytial cells upon the tubal wall that tubal pregnancy is compared by many clinicians to a parasitic growth, to a malignant process, requiring in every case to be treated as such. Extra-uterine pregnancy is like a mine ready to explode without a moment's notice. It is highly important that the patient be at all times within easy reach of competent surgical assistance.

Extra-uterine pregnancy almost invariably is primarily tubal; ovarian pregnancies occur, but they are pathological rarities. Tubal pregnancy occurs in all races and at all periods of the child-bearing age. It may be intramural, isthmic or ampullary, unilateral or bilateral. It does not seem to show any predilection for either tube. In 60 cases reported by Newell the right tube was involved in 30, the left in 24. In the remaining 6 cases, the

pelvic relations were not clearly made out. It may be the individual's first conception, or precede, be associated with or follow one or more normal uterine pregnancies. Mussey, in the *St. Paul Medical Journal* of 1914, reports a study of 168 cases occurring in the Mayos' clinic. Of these cases, 60 had never been previously pregnant. Normal uterine pregnancies have intervened between two extra-uterine pregnancies. Some cases have been preceded by one or more miscarriages, accidental or induced; many have occurred in primiparae and in multiparae after a prolonged period of sterility, and in a considerable number of cases one obtains a history of previous inflammation, gonorrheal or other, of the internal genitalia. It is thought that inflammatory processes act as an etiological factor by producing kinks, strictures, adhesions, obliterations of the tube and by destroying the tubal cilia.

Every conceivable variation has been observed in cases of tubal pregnancy; it has been repeated in the opposite tube, in the same tube, in a tubal stump. There has been simultaneous gestation in the right and left tubes, and also simultaneous tubal and normal uterine pregnancies. Under the designation "Tubal Twin Pregnancy" three distinct conditions are included:

1. Where one ovum is intra-uterine and the other extra-uterine.
2. Where each tube contains an ovum.
3. Where both ova are contained in one tube.

Tubal pregnancy at times simulates, and in some of the reported cases was associated with one or more of the following pathological conditions: ovarian cyst, salpingitis, pyosalpinx and hydrosalpinx of the opposite side, appendicitis, various forms of uterine displacement and various uterine neoplasms.

What are the possible terminations of an extra-uterine pregnancy abandoned to the unassisted resources of nature?

1. The pregnancy may go to term and a living child be delivered through channels created by the surgeon. In connection with this termination, one must keep in mind that extra-uterine children frequently die in the first few days of life; many of them have lived only a few hours. They are frequently the subject of deformity. Potocki comments on the low cranial dimensions of his case. When two years old the child could not talk, and did not recognize anybody, not even his nurse. The operation necessitating their removal from the maternal organism may prove fatal to them. It may prove fatal to the mother, either immediately from surgical shock or from excessive hemorrhage; or remotely from toxemia, septicemia or pyemia. The removal of a living, full-term extra-uterine child is one of the most difficult operations one can be called upon to perform.

2. The pregnancy may go to term, and the child, remaining undelivered, dies, and persists indefinitely in the maternal organism. It may at any time become a menace to the life and health of the mother.

3. The fetus may die previous to term. Small embryos when expelled into the peritoneal cavity are promptly absorbed unless the placenta retains a firm attachment to the tube or contracts new attachments. Fetuses that die at an advanced state of development cannot be absorbed.

The undelivered tubal fetus may undergo—

a. Putrefaction.
b. Mummification.
c. Maceration.
d. Septic changes (1) from communication with neighboring organs; (2) from contiguity with neighboring organs.

After the death of the fetus, the liquor amnii is absorbed. No more is secreted. The cyst shrinks, and the gestation-sac may be considered as a cyst, a fetal cyst. The fetal cyst may be merely—

1. A mechanical inconvenience to the maternal organism.

2. An obstacle to a subsequent intra-uterine pregnancy, and have to be removed to allow a simultaneous or subsequent uterine pregnancy to go to term.

3. A source of irritation to one or more contiguous organs, causing rectal or vesical disturbances; by compressing the intestines, determining an ileus; by compressing the bladder or ureters, causing urinary retention.

4. A cause of uterine displacement.

5. A cause for diagnostic errors.

6. The fetal cyst walls may and frequently do become adherent to surrounding organs and tissues, and the cyst, by means of a perforative inflammation, opens into the (a) bladder, (b) vagina, (c) intestinal canal, or (d) through the abdominal wall, by either or by several of which channels of outlet it eventually incompletely or completely eliminates its decomposing contents.

To recapitulate: The cyst may rupture—

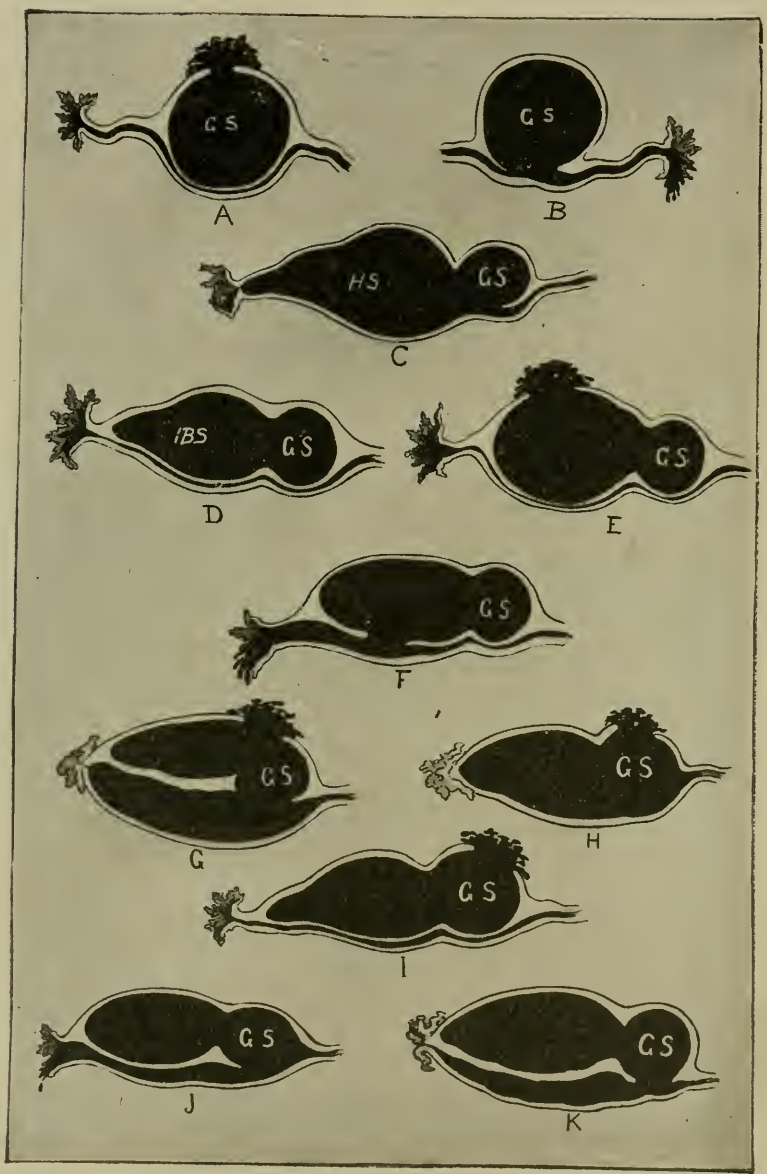
1. Into the bowel by one or several openings.

2. Into the vagina.

3. Into the urinary bladder and the fetal bones and other cyst contents by expelled per urethram. "Ten years after this extra-uterine gestation, patient began to feel that something was always obstructing the passage of the urethra and causing intense pain and discomfort. Small pieces of bone often discharged with the urine. The bladder was found to communicate with a sac containing a large number of fetal bones. The patient was placed under chloroform five times, only a few minutes each time, with an interval of six days between the sittings, and 68 bones were removed. Some still remained in the sac." (Rai, 9a.)

4. Into the rectum and the fetal bones be expelled through the anal canal. "A painful, continuous, foul-smelling, purulent, bloody discharge from the anus; fetus minus an arm was passed through the rectum. The rectum was dilated, and the occipital and parietal bones removed." (Marsh, 9b.)

5. Into the uterus.



A. Extratubal rupture of gestation-sac. Escape of blood into peritoneal cavity.
B. Intratubal rupture, with escape of blood into peritoneal cavity through ostium abdominale of Fallopian tube.
C. Intratubal rupture, with retention. Hematosalpinx.
D. Intramural rupture. A layer of muscular tissue intervenes between the blood extravasate and lumen of tube.
E. Intramural rupture, with blood-sac opening into peritoneum.
F. Intramural rupture, with blood-sac opening into lumen of tube.
G. Combined intratubal and extratubal and intramural rupture.
H. Combined intratubal and extratubal rupture.
I. Combined intramural and extratubal rupture.
J. Combined intramural and intratubal rupture, with escape of blood into peritoneal cavity.
K. Combined intramural and intratubal rupture, with retention of blood into lumen of tube.
GS. Gestation-sac. HS. Hematosalpinx. IBS. Intramural blood-sac.

6. Into a cyst of other nature contained in the abdominal cavity.

7. Through the abdominal wall.

8. The fetal cyst may open and be eliminated through one, two or more channels in the same patient.

Rupture is one of the terminations of tubal pregnancy. It is appalling in its suddenness, and often overwhelming in its results. It may occur before or after the death of the fetus. Primary or secondary gestation sacs may rupture. The gestation may be arrested by this accident, or may continue uninterrupted, though changed in anatomical type. Rupture is associated with hemorrhage, circumscribed or diffuse, belonging to one of the three following types, or to a combination of two or of all these types: (a) Extra-tubal, (b) intra-tubal, (c) intra-mural. If the amniotic sac be ruptured and there be an outflow of the amniotic fluid, gestation will come to an end.

Extra-tubal rupture takes place: (a) Into the peritoneal cavity; if the ovum does not perish, the pregnancy is continued as a tubo-peritoneal or peritoneal pregnancy. Kastanajeff reported in 1914, 717 cases of ectopic gestation treated in a Petrograd hospital; nearly 600 of these ruptured before the end of the eighth week.

(b) Between the folds of the broad ligament. If the gestation be not interrupted, it will continue as an intra-ligamentary or tubo-abdominal pregnancy. Intra-ligamentary pregnancy is far more infrequent than peritoneal pregnancy. The layers of the broad ligament provide a ready-made capsule, by means of which the amount of bleeding is restricted.

(c) An intra-mural rupture may lead secondarily to an intra-tubal or extra-tubal rupture. In intra-mural rupture a thin layer of muscle tissue and the peritoneum separate the blood-sac from the peritoneal cavity; a thin layer of muscle tissue separates the gestation sac from the intra-ligamentary space. The condition is somewhat analogous to that which obtains when a saccular aneurysm ruptures and the blood escapes interstitially. If the abdominal opening of the tube be occluded, intra-tubal rupture leads to an accumulation of blood in the cavity of the tube, viz., hematosalpinx. If the abdominal end of the tube be not occluded, the blood passes out of the tube into the peritoneal cavity, giving us a pelvic hematocele or a hemoperitoneum. The ovum, continuing to develop in the tube, may rupture secondarily either into the peritoneal cavity or between the folds of the broad ligament, and gestation therein continue. If one variety of rupture fails to relieve the tension, the gestation-sac ruptures in another direction. In tubal abortion the ovum is carried out of the tube by the intra-tubal hemorrhage.

The hemorrhage that attends and follows rupture usually requires immediate surgical interference. In some cases it seems as though almost every drop of blood in the patient's body has been shed into her abdominal cavity.

Tubal ruptures and tubal abortions are associated with hemorrhage. Hemorrhage may also result from perforation of the tubal wall owing to the development of the chorionic villi. The amount of blood discharged bears no relation to the extent of the rupture. Severe and even fatal hemorrhages have occurred from very small orifices. The rupture may be punctiform in size; may be a large tear; may be almost a complete rending of the tube. Rupture into the peritoneal cavity leads either to the formation of an hematocele, or to a flooding of the peritoneal cavity; the latter will prove fatal if the hemorrhage be not operatively arrested. Maternal death may be caused by one severe intra-peritoneal hemorrhage, or by recurring hemorrhages. The signs and symptoms of acute anemia are quickly produced.

If the extra-tubal rupture be between the folds of the broad ligament, a pelvic hematoma will result. This hematoma is almost invariably one-sided, and, needless to say, is on the side of the rupture. In some cases, it dissects forward between the uterus and bladder, or backward around the uterus beneath the peritoneum and extends to the opposite side. If tension within the hematoma is excessive, rupture may take place secondarily into the peritoneal cavity, giving us the combined condition of both intra-peritoneal and extra-peritoneal hemorrhages. The same may occur in a hematosalpinx. Excessive tension leads to tubal rupture either into the peritoneal cavity, or between the folds of the broad ligament, or in both directions. The hemorrhage associated with the rupture of a tubal or an ovarian gestation-sac either proves fatal, or a pelvic hematoma or a pelvic hematocele results. These encysted blood collections—hematomata or hematoceles—are partially or completely absorbed, persist as fibrous bands or masses, or become infected and lead to pus formation. If the suppurative inflammation be circumscribed, an abscess is formed. Should the inflammation spread to, or the abscess burst into the peritoneal cavity, there results a circumscribed or diffuse suppurative peritonitis. Should the inflammation extend to the retro-peritoneal connective tissue, a cellulitis results, with all its accompanying dangers. The expulsion of the uterine decidua does not imply the death of the extra-uterine fetus.

The migration of the ovum into the abdominal cavity, through the ostium abdominale, is known as tubal abortion (Bland Sutton). Tubal abortion may also lead to hematosalpinx. Usually, however, the blood escapes freely through the ostium abdominale into the cul-de-sac of Douglas, and either becomes encysted there or escapes into the general peritoneal cavity. The three factors involved in causing abortion or rupture apart from such extraneous causes as bi-manual examination, etc., are:

1. The destructive action of the trophoblasts.
2. Bleeding.
3. Contraction of the muscular wall of the tube.

One should always be very careful and gentle in examining a

case of probable tubal pregnancy; the danger of rupturing one of these tubes by rough manipulations exists.

Tubal abortion may be complete or incomplete. In the former there is usually one attack of pain and weakness. In the incomplete form we have repeated attacks of weakness. The abortion, if the amniotic sac remains intact, and if the ovum resists absorption, leads to a tubo-peritoneal and peritoneal pregnancy. If the villi or placental attachments are destroyed, the ovum, being unable to form secondary attachments to other structures, dies.

TREATMENT.

Extra-uterine pregnancy is as truly a surgical disease as appendicitis, and though, as in this disease, a clinical cure may at times be obtained by non-operative measures, it is not common for that clinical cure to be an anatomical cure. In ectopic pregnancy do not consider the viability of the child except as it endangers the life of the mother. We must destroy the fetus to save the mother. Without surgical aid extra-uterine pregnancy always terminates fatally to the child, and frequently causes the mother's death.

Nature's tedious methods of relief, and the many dangers to which the woman is obviously exposed during its occurrence, justify surgical interference. Even the absorption of large uninfected collections of blood is far more prolonged than post-operative convalescence. The ideal time for operating is before rupture takes place. Error should be made upon the side of prompt operation rather than on that of undue waiting.

In the hands of the average operator, the only possible dangers to which the mother is exposed by the operative removal of the dead or live ectopic fetus are sepsis, hemorrhage and shock. The first can be avoided, the second can be completely controlled, and the third can be minimized and almost always overcome.

Some operators make use of the terms "primary laparotomy" and "secondary laparotomy." In the former, the operation is performed during the life of the fetus. It is in accord with the theory and practice of modern surgery. It attacks tissues while they are healthy, in preference to awaiting nature's blind efforts to improve conditions. Secondary laparotomy is the operation performed after the death of the fetus.

The diagnosis of ectopic gestation is in itself an imperative indication for operation. Delay is inadmissible. The longer one waits, the more dangerous the condition becomes. A waiting policy is often fatal. Lives can be saved by accurate diagnosis, prompt decision and skillful operating. The profession in general has not exhibited that keenness and alertness toward extra-uterine pregnancy which has characterized its study of appendicitis in the last few years.

In tubal rupture and in tubal abortion the first indication is to stop the hemorrhage. This indication is urgent. Hypodermic medication will not accomplish it. To stop this hemorrhage, place not your faith upon the coagulability of the blood, the lessened

force of cardiac action, or such agents as heat, cold, styptics and the like. Stimulants must not be used in internal hemorrhage until the bleeding vessels have been secured, as increase of cardiac and arterial tension would be followed by recurrence of bleeding. Open the abdomen: stop the hemorrhage by ligating bleeding points with aseptic absorbable ligature material, if you have it at hand; with antiseptic non-absorbable ligature material if the former be not at hand.

Even in the absence of urgent symptoms do not delay operation. To postpone operation is to incur adhesions and hematocele sacs in their various forms. As long as the embryo or fetus lives, the placenta increases daily in size, in vascularity, and in difficulty of removal. Furthermore, every day the increasing size of the child and of the placenta adds to the danger of secondary rupture.

Having decided to operate, two pathways are open: 1. Through the vaginal wall. 2. Through the abdominal wall. In some difficult cases you may have to use both the abdominal and the vaginal route. We recommend the vaginal route in the following conditions, viz., pelvic abscess, when the gestation-sac has been converted into a pelvic abscess, when suppuration has occurred in an intra-ligametary fetal cyst, and in all intra-ligamentary hematomata. The opening of pelvic abscesses by way of the vagina is a safe and wise surgical procedure. The results are almost always very satisfactory. 2. In those cases where the fetal parts closely press against the vaginal wall. Even here it may be necessary to make use of the abdominal route, in addition to the vaginal route. It is often impossible to remove the impregnated tube through a vaginal incision. There is always greater danger of wounding the intestines when one makes use of the vaginal route. We prefer the abdominal route because it enables the operator—1. To remedy at the same time coexisting pathological condition—hydrosalpinx, obliteration of the abdominal ostium of the unaffected tube, ovarian cysts, etc. 2. To more thoroughly and more rapidly arrest hemorrhage. 3. To make a more direct examination, and thereby to judge better the extent of damage, and formulate a more accurate diagnosis, and effect a more conservative ablation of organs. 4. To have the operative field under much better control, to more quickly come in contact with the condition, and to better and more completely remove the fetal sac and its contents. The separated ovum or liberated fetus may ascend in the abdominal cavity, and it may be very difficult to find and remove it by the vaginal route. An abdominal incision enables the operator, in case of an incorrect diagnosis, to treat those conditions that simulate ectopic gestation. In operating, sight, as well as touch, is a very useful aid.

The greatest difficulty that we encounter near term, at term or after term in operating for ectopic gestation is connected with the removal of the placenta. A slight detachment of the placenta often results in alarming hemorrhage.

We make use of a supra-pubic or infra-umbilical incision about

one-half inch to one side of the median line, so the edges of the resulting wound are better adapted to our method of suturing the abdominal wall. Avoid cutting the epigastric vessels. Avoid cutting the urachus. Cutting into a patulous urachus is as significant as cutting into a urinary bladder. The cut must be repaired. Make timely and appropriate use of the Trendelenburg position. The patient must be placed in this position gradually, not suddenly. The return to the horizontal posture must also be gradual. The Trendelenburg position facilitates the gravitation of the intestines toward the diaphragm. It permits a better view of the pelvic tissues and organs. After the patient has been gradually placed in the Trendelenburg position, the intestines and the general peritoneal cavity are walled off from the pelvic cavity by gauze pads.

In all operations for extra-uterine gestation, the opposite tube and ovary should be carefully examined, as they may be the seat of degenerative changes. In a few instances the condition is bilateral. Extra-uterine pregnancy in some individuals has recurred.

Never make a needless sacrifice of tissues or organs. In the absence of a positive indication, such as a highly contracted pelvis, preventing the birth of a living child through the natural channels, etc., never remove the non-diseased tube and ovary. As most extra-uterine pregnancies are tubal, early operation will permit the preservation of the ovary. The preservation of the ovaries is of benefit to the patient.

The main difficulty in early and late operations is hemorrhage. The ideal treatment for hemorrhage incident to operations undertaken for the removal of the ectopic gestation-sac is prophylaxis. Therefore, do not provoke uncontrollable hemorrhages. Proceed after having well sized up the situation. Hemorrhage must be controlled by ligation or by compression of the bleeding points. Normal salt solution must not be given, either intravenously, subcutaneously or per rectum, before the bleeding points have been controlled or secured. Once the bleeding is under control, its use is of signal benefit. It increases the volume of the circulating fluid. Do not close up the abdomen until you are satisfied concerning the hemostasis. Hemorrhage is most profuse if the fetus be alive at time of operation.

If possible, do not leave denuded peritoneal surfaces. They are possible avenues of infection. After ablation of one or both tubes, suture the folds of the broad ligament to each other from the superior pelvic strait to the angle of the uterus. Peritonization—that is, the covering with peritoneum of all denuded surfaces—lessens adhesion formation. These adhesions may be attended with colicky and other pains; may cause intestinal obstruction. This peritonization lessens hemorrhage and creates a barrier capable of limiting the extension of inflammatory processes.

In attempting to remove the fetal sac and its contents, be careful lest these efforts inflict much damage upon continguous organs. Repair such damage, if feasible, before closing up the abdominal cavity.

In early, unruptured, tubal pregnancy there are usually no adhesions. If adhesions be present, they are to be separated, as in all other intra-abdominal surgical interventions, with great care and by the same methods. The incision, about three inches in length, is carried through the different layers of the abdominal wall into the peritoneal cavity. The first step is to locate the uterus. Using the fundus of the uterus as a guide, and proceeding to the right and to the left, examine both tubes and both ovaries. Tubal pregnancy is located with about as equal frequency on one side as on the other. Separate all adhesions, if such exist, of the gestation-sac to contiguous organs. Then remove the gestation-sac (which is usually tubal) as a whole, if possible, by total resection of the Fallopian tube involved. Suture the folds of the broad ligament together; leave no denuded peritoneal surfaces. Close up the peritoneal cavity. Post-operative treatment is that of uncomplicated laparotomy. If the pregnancy be ovarian in type, and be early and unruptured, do a typical ovariotomy. Accuracy and rapidity in operating is as essential in these cases as in any other intra-abdonimal work.

If the gestation-sac is ruptured and hemorrhage has occurred or is occurring, after opening the abdominal cavity immediately locate and keep in view the fundus of the uterus. Determine on which side is the ruptured gestation-sac. Seize the uterus, preferably with the hand or with a double tenaculum. It is a most important landmark. Having determined on which side the rupture is (it is usually tubal), apply a clamp or clamps at the uterine end of the tube. This will stop all further hemorrhage from the ovarian artery of that side. Apply another clamp or clamps immediately below the tube, compressing the folds of the broad ligament, but not injuring the ovary. Then remove the affected tube and the gestation-sac. Ligate all bleeding points, suture the folds of the broad ligament and the tubal surface of the uterine stump. Remove as expeditiously as you can, the easily removable liquid blood and blood clots contained in the peritoneal and pelvic cavities. Remove the embryo if it can be found without prolonged search. Let there be no needless exposure, no needless traumatizing of the intestines. Mechanical, chemical and thermal irritation of the peritoneum intensify operative shock, and may be followed by the aperistaltic form of ileus. Post-operative treatment is that of acute internal hemorrhage for which a laparotomy has been performed. Use normal saline solution secundum artem.

The most dangerous operative conditions, from the maternal standpoint, are presented by those in which the fetus is alive. In these cases, the hemorrhage frequently is appalling. Some authors have suggested that the abdominal aorta be compressed. When the placenta is attached to the line of incision, the hemorrhage is profuse; it is checked by firm compression. In those cases in which the fetus is alive we have two things to accomplish, and they must be accomplished with the preservation of the mother's life. The first thing to accomplish is the removal of a living child.

The last and most important is the removal of the ovular debris—placenta, membranes, etc. One is not often called upon to operate cases in which a living child is present. For a physician knowingly to abstain from operating in a case of extra-uterine pregnancy before it reaches term is, to say the least, injudicious. The best practice is to terminate these pregnancies early, before the development of the ovum is much advanced.

Remove the fetus without disturbing the placenta. If the fetus is alive, after having opened the abdominal cavity and protected the peritoneal cavity by compresses from the outflow of amniotic fluid, ligate the umbilical cord as in a normal pregnancy and remove the fetus. Have the amniotc fluid escape externally as much as possible. Upon the maternal end of the umbilical cord a clamp is placed, the umbilical cord being cut either between the ligature and the clamp or between the two clamps.

If the fetus has reached term or near term and is dead, there is some difference of opinion as to which operation is the preferable method—the immediate operation or the delayed operation—until the fetus has been dead for a month or longer. Our experience leads us to believe that the danger incident to the policy of expectancy is so great that if the fetus is dead, be that death recent or of some standing, it should be removed without delay. Exceptionally, our incision may carry us into the fetal sac. This occurs in some extra-peritoneal or broad ligament pregnancies and the peritoneal cavity is not opened. In this variety the sac and placenta are entirely beneath the peritoneum. The latter may have been pushed up, stripped, as it were, from the anterior abdominal wall for a greater or less distance. Without disturbing the placenta, after having ligated the umbilical cord near the placenta, hastily remove the fetus. Evacuate the sac contents and then, after separating the sac and the placenta from the surrounding structures to which they have become adherent, remove them. Usually our incision carries us into the peritoneal cavity. After placing the patient in the Trendelenburg position, separate the sac from the contiguous viscus or viscera to which it adheres. Control hemorrhage as you proceed. Operate rapidly. The general peritoneal cavity is protected by gauze compresses, which are numbered and counted, and then the incision is carried into the ovum. Occasionally you may be able to remove the ovum as a whole. If the placenta is not safely removable, if the nature of the adhesions of the surrounding organs to the ovum is such that their separation would prove disastrous, content yourself with evacuating the fetal cyst and then suturing its walls to the abdominal wound. The sac must be packed daily until the placenta has been expelled and the sac cavity obliterated. If the placenta is to be left behind, it is better that it be not disturbed.

The following methods have been employed:

1. The fetus, the umbilical cord and the amniotic fluid have been removed. Everything else has been left in situ and the abdominal wall closed. This is an extremely risky experiment.

2. The fetus is removed, and more or less of the sac is resected. Drainage of the sac cavity is employed, and the placenta and sac are left for spontaneous expulsion. This is the most frequently employed procedure.

3. After the removal of the fetus, umbilical cord and amniotic fluid, the placenta is removed in part—so much of it as is easily separated—and the remainder is left to spontaneous absorption.

4. The placenta is left in situ after removing the fetus. Then, after the expiration of a certain time, when it is hoped that the blood supply is spontaneously cut off, the placenta is shelled out.

5. The placenta and entire ovum are removed immediately. Ideal measure, if feasible.

6. The placenta and gestation-sac are removed at once, likewise the neighboring organs, the uterus and ovaries, providing the hemorrhage cannot otherwise be arrested.

7. Preliminary ligature of the uterine and ovarian arteries of the side from which the placenta received its blood supply, followed by removal of the placenta.

There is no disputing the fact that the fetal sac and placenta should be removed completely if the procedure be consistent with the safety of the mother. The complete ablation of the ovum is theoretically the only perfect operation.

The method we employ in those cases in which we fear to disturb the placenta is the following: After incising the sac, removing the fetus and other intra-ovulary contents, and ligating the umbilical cord close to its implantation, we resect a portion of the sac wall and sew what is left to the abdominal wound, thus closing off the general peritoneal cavity. This leaves a large pouch, which is packed with strips of aseptic gauze. Endeavor to keep this sac cavity aseptic until all the placenta has sloughed out of the wound. The elimination of the placenta by this method takes from 20 to 50 days.

In some cases a vaginal drain has to be used, in addition to the abdominal drains. The first strips of gauze that are inserted in the fetal sac are made to serve the offices of a compress and of a tampon. They are used to check the bleeding. After the first dressings the gauze strips are used more with drainage in view. After the fetal cyst has been sewed to the abdominal wall, or immediately previous, according to the exigencies of the case, the compresses that have been used to protect the general peritoneal cavity are removed. Sewing of the sac wall to the abdominal wound shuts off all communication between the cyst and the peritoneal cavity. We use No. 3 catgut to suture the sac wall to the abdominal wall. The abdominal wound is closed as in those cases in which a Mikulicz drain is employed. Post-operative treatment, symptomatic.

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Book Reviews.

Diseases of the Digestive Tract and Their Treatment. By A. Everett Austin, A.M., M.D., Former Professor of Physiological Chemistry at Tufts College, University of Virginia, and University of Texas; Present Assistant Professor of Clinical Medicine, in Charge of Dietetics and Gastrointestinal Diseases, Tufts College; Member American Gastroenterological Association and American Society of Biological Chemists; Physician to Mt. Sinai Hospital and Berkeley Infirmary, and Assistant to Boston Dispensary; Author of Manual of Clinical Chemistry, etc. With 85 Illustrations, including 10 Color Plates. St. Louis: C. V. Mosby Company. 1916. Cloth, $5.50 net.

This book enters into the discussion of gastrointestinal diseases with sufficient detail for the purposes of the general practitioner of medicine. It approaches the subject from the didactic or positive standpoint rather than that of case method. Whereas by this method the finer variations in disease is eliminated, it has the advantage of presenting the subject with greater positiveness, and for the class of readers which it is destined to reach, answers the purpose better. With sufficient fulsomeness the essential details of the anatomy of the stomach and intestines, the physiology of digestion and the examination of the patient are unfolded. Some 50 pages are devoted to the physical methods of examination of the patient, namely, inspection, palpation, percussion, auscultation, radiological examination, etc. Then the author describes the means for acquiring the gastric content and the various tests applied for the detection of its normality or abnormality—chemical, microscopic, etc. Parts II and III are devoted to special gastric and intestinal diseases, namely, acute and chronic gastritis, cancer of the stomach, ulcer of the stomach, enteroptosis, functional disturbances of the intestines, inflammatory diseases of the intestines, ulcerative processes of the intestines, malignant growths of the intestines, etc. Throughout the entire volume there is a tone of conservatism and a thorough mastery of the subject. Emphasis is laid upon the benefits to be derived from medicinal agents, be they physical or therapeutic, but the author does not, as in so many instances which have come to our attention, hesitate where the necessity arises to advocate the knife. We realize that he is handling the subject from the standpoint of an internist, and undoubtedly medicaments can accomplish much in these affections when employed judiciously. The internist has as much justification in the conclusions he draws as to whether he has effected a cure or not as the surgeon. In stomach and intestinal affections the results of the surgeon, if followed, are not by any means ideal in all instances. Still there are some conditions affecting the stomach and alimentary tract which can only be benefited by the scalpal. The author does not hesitate in these conditions to advise calling in the

surgeon. It is indeed a relief to find a book in which the author can so unbiasedly treat the subject from all angles. It gives us great pleasure to recommend it to our readers as presenting the subject of gastroenterology in a frank form, advising the use of medicine where the author has found it to have done good in his hands and the knife where it has proven beneficial in the hands of the surgeon. It is a well-rounded book, up to date and thoroughly dependable.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Edited by P. G. Skillern, Jr., M.D., of Philadelphia. Published Bi-monthly. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. Paper, $8 net. June, 1916.

This number contains a talk by Dr. R. C. Coffey, a celebrated far Western surgeon, on "Certain Abdominal Operations." Besides this article, there are a number of interesting case reports by Dr. Murphy, with a description of the operative technique employed to overcome the afflictions, viz., "Multiple Sarcomata of the Skin," "Ulcer of Duodenum and of Jejunum," "Anterior Gastro-enterestomy by Oblong Button Method," "Cholelithiasis, Pancreatitis, Appendicitis — Cholecystostomy, Appendectomy," etc. This and all the other matter contained within this volume has a lesson for some one of our readers. It is a periodical that one cannot well be without.

Cancer of the Stomach. By Frank Smithies, M.D., Gastro-enterologist to Agustana Hospital, Chicago; Formerly Gastro-enterologist to the Mayo Clinic, Rochester, Minn.; Formerly Instructor in Internal Medicine and Demonstrator of Clinical Medicine in the University of Michigan, Ann Arbor; Fellow of the American Gastro-enterological Association, etc. With a chapter on "The Surgical Treatment of Gastric Cancer." By Albert J. Ochsner, M.D., LL.D., F.R.C.S., Professor of Clinical Surgery in the School of Medicine of the University of Illinois; Surgeon-in-Chief to Agustana Hospital, Chicago; Consulting Surgeon to St. Mary's Hospital, Chicago. Illustrated. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. Cloth, $5.50 net. 1916.

During the past decade much advance has been made in our knowledge concerning a better understanding of the clinical, pathological and surgical aspects of gastric cancer. This has come about through the efforts of a host of investigators, both experimental and clinical. Therefore, the conclusions of a man who has had such an enormous experience with this aspect of the cancer question as Dr. Smithies should bear the greatest consideration. The conclusions drawn in this book are based upon a clinical study of 921 operatively and pathologically demonstrated

cases of gastric carcinoma. Though cancer is on the increase, the author cannot attribute it to any particular occupation or diet, but he is of the opinion that traumatism of mechanical type does influence sometimes the development of gastric malignancy, and adduces examples as proof thereof. A striking statement is that hereditary histories predisposing to cancer were 58.9 per cent. of his series of gastric cancer, but at present the exact rôle is unknown. In regard to the rôle gastric ulcer plays in gastric cancer, he says: "It is somewhat striking that those internists, pathologists and surgeons who have only meager evidence to present most staunchly proclaim that such transition but rarely occurs. Pathologists and clinicians acquainted with and practicing modern methods admit that the question is still unsettled in many of its phases. They maintain, however, that until we are thoroughly acquainted with the facts bearing upon the cause and life history of gastric ulcer and of gastric cancer, there is but little hope of scientifically proving how many benign gastric ulcers become malignant and how many continue to pursue a benign course.

The Medical Clinics of Chicago. January, 1916. Published Bi-Monthly. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Company. Paper, $8.00 per annum. Volume I, No. 4.

This number contains articles from the pens of Isaac Abt, Maurice L. Goodkind, Walter W. Hamburger, Charles L. Mix, George H. Weaver, Frederick Tice, etc.

Tice states in an article on Epidemic Cerebrospinal Meningitis that the diagnosis of a clinical meningitis is not particularly difficult, but it is far more difficult to diagnose the specific type of meningitis. In this connection he advises lumbar puncture as of the greatest assistance. He then thoroughly discusses lumbar puncture, both from a diagnostic as well as therapeutic standpoint. He is of the opinion of Albrecht and Ghon that the diplococcus of Weichselbaum gains admittance to the system through the upper respiratory tract; this despite the fact that in many instances it cannot be demonstrated, he accounting for this according to the time the examination is made. Usually, after the lapse of two or three weeks, the organism is no longer present; and this may be the case even where the manifestations of meningitis persist. In experimental work it has only been possible to make an infection by direct introduction into the meninges.

The active treatment, according to the author, consists in the administration of Flexner's serum, which is administered intraspinously, as it has no effect when given subcutaneously or intravenously. In a case of moderate severity 30 cc. every twenty-four hours is sufficient; in the severer types two injections should be administered in the first twenty-four hours.

This is simply a type of the articles appearing in this bimonthly. If Medicine is to advance, more work of this char-

acter must be done. At any rate, such articles should arouse the internist as to the possibilities of advancement of his side of Medicine.

Collected Papers of the Mayo Clinic. Rochester, Minn. Edited by Mrs. M. H. Mellish. Vol. VII. 1915. Philadelphia and London: W. B. Saunders Company. Baltimore: The Medical Standard Book Co. Cloth, $6. Half Morocco, $7.50 net. 1916.

Volume VII of the "Collected Papers of the Mayo Clinic" contains in a convenient form and a form easily accessible a résumé of the work done at this wonderful institution during the year 1915. The articles are on a variety of subjects and by a number of the members of the staff of that institution. It is a book which will be found useful by general practitioner and surgeon alike, and should be an incentive to better work to every member of the medical profession, as it is a concrete demonstration of what can be accomplished by a doctor or set of doctors if they work together, even if they are located in a little out-of-the-way hamlet.

A Few Important Ophthalmic Reminders for the Busy Practitioner. New York: The Fellows Company.

This brochure admirably recalls to the attention of the practitioner certain important ocular conditions which should be promptly recognized, viz: Never put atropine or any other mydriatic in the eye without first estimating the intraocular tension, for, should glaucoma exist, atropine will make matters worse, and even precipitate an impending attack; never prescribe a lotion containing salts of lead from any affection of the cornea, as an oxid may be deposited and form a dense, permanent opacity, etc. These extracts are only samples of the many useful hints abounding throughout the pamphlet. It should prove invaluable to the general practitioner in recalling to his mind points of diagnosis and treatment which has escaped his memory.

A Manual of Gynecology and Pelvic Surgery for Students and Practitioners. By Roland E. Skeel, A.M., M.S., M.D., Associate Clinical Professor of Gynecology, Medical School of Western Reserve University; Visiting Surgeon and Gynecologist to St. Luke's Hospital, Cleveland; Fellow of American Association of Obstetrics and Gynecologists; Fellow American College of Surgeons. With 289 illustrations. Philadelphia: P. Blakiston's Son & Co. Cloth, $3 net. 1916.

This book is no more or less than it pretends to be—a manual, and as such it is neither too fulsome nor too scant. Withal, it is a concise, practical work, and is particularly strong in its sections on treatment and diagnosis. If used as a reference book in conjunction with lectures, it will be found very useful in clearing up mooted questions. It also has a field of usefulness in preparing

for State Board medical examinations and as a hasty reference book for the busy practitioner who occasionally delves in gynecological practices. In so far as it goes, it is modern, up to date and thoroughly reliable. The illustrations are well selected, and should tend materially to simplify the text. It gives us great pleasure to recommend it to our readers.

PELLAGRA: AN AMERICAN PROBLEM. By George M. Niles, M.D., Gastro-Enterologist to the Georgia Baptist Hospital, Wesley Memorial Hospital and Atlanta Hospital; Consulting Gastro-Enterologist to the Atlanta Antituberculosis Association and to the Moore Memorial Clinic, Atlanta, Ga. Second Edition. Illustrated. Philadelphia and London: W. E. Saunders Company. Baltimore: The Medical Standard Book Co. 1916. Cloth, $3 net.

After some remarks more or less generalized, historic and otherwise, the author launches into a discussion of Pellagra as it affects the United States. Since Pellagra has become so widespread and of such frequent occurrence here in these United states, and since it is on the increase and is a vital problem in practically every section, none being absolutely excepted from its visitations, it is high time that physicians familiarize themselves with its chief characteristics, so that it be recognized early. As early as 1863 two cases were recognized in New York, from which time until 1883 nothing is heard of it, when a case was reported by Dr. S. Sherwell of Brooklyn, N. Y., in a Genoese sailor. But it was not until 1902 that the profession began to thoroughly realize that Pellagra had unrecognized gained a firm foothold in the Southern States, and began to wake up to the gravity of the situation, and through their efforts the ear of the American people reached and Pellagra as an American problem driven home to the most skeptical. Dr. Niles believes a present estimate of 40,000 pellagrins in the United States is not far from correct, thus forcibly reminding us of the enormity of the problem. So it has come to pass that "a condition and not a theory confronts us," and it is this condition that Dr. Niles, after a wide practical experience and much thought and observation, seeks to drive home. He leans to the belief that pellagra is not transmitted by a winged, blood-sucking insect, but an unbalanced diet containing an excessive proportion of corn or corn products, with other cereals and vegetables. Some sixty pages are devoted to the symptomatology and course of pellagra and the remainder of the book to its pathology, diagnosis, prognosis, treatment, prophylaxis and experiments on animals, with the deductions derived therefrom. From time to time cases have been reported here in Maryland, and as this book gives such a clear picture and accurate statement of the problem by one who has been in the midst of the enemy, Maryland physicians should and will find the volume of direct use in preparing themselves against the loathsome enemy.

Summary of Results of Examination Held by the Board of Medical Examiners of Maryland, June 20, 21, 22 and 23, 1916.

No.	College of Graduation.	Anatomy	Surgery	Pathology	Obstetrics	Practice	Chemistry	Materia Medica	Therapeutics	Physiology	Total	Average
1	Medical College of Virginia, '14	..	..	75	..	..	80	..	..	..	...	..
2	Johns Hopkins	79	..	..	..	..	80	80	..	..	...	..
3	Johns Hopkins, '16	78	80	84	82	75	89	83	93	81	745	83
4	Johns Hopkins	90	..	..	..	..	99	77	..	85	...	..
5	Johns Hopkins, '14	75	82	85	79	80	75	60	76	75	687	76
6	University of Maryland, '12	62	78	54	67	81	50	76	65	50	583	65
7	University of Maryland, '16	90	84	93	89	84	89	82	98	81	790	88
8	Johns Hopkins, '14	68	80	72	73	76	86	70	62	72	659	73
9	University of Maryland	82	..	..	..	..	98	92	..	84	...	..
10	University of Maryland, '15	75	84	82	77	78	85	78	91	76	726	81
11	University of Maryland, '14	63	..	..	..	63	46	..	..	..	...	..
12	Johns Hopkins, '16	80	94	91	92	85	95	92	98	93	820	91
13	Maryland Medical College, '04	36	68	62	45	70	90	82	94	50	597	66
14	Johns Hopkins	79	..	..	..	..	90	88	..	80	...	..
15	Howard University, '07	57	54	71	68	66	78	42	40	75	551	61
16	Johns Hopkins, '15	79	75	80	85	82	94	90	81	76	742	82
17	Temple University, '15	53	71	63	67	78	68	76	61	75	612	68
18	Johns Hopkins, '16	77	80	81	91	91	89	80	87	75	751	83
19	Johns Hopkins, '16	82	85	98	77	79	95	70	90	91	767	85
20	University of Maryland	80	..	..	..	..	100	86	..	94	...	..
21	Johns Hopkins, '15	96	90	83	94	95	98	100	95	97	848	94
22	College Physicians and Surgeons Balto., '14	..	77	75	..	..	..	..	..	..	...	..
23	Johns Hopkins, '16	86	85	90	91	85	76	86	94	94	787	87
24	Johns Hopkins, '16	89	86	95	84	84	98	87	95	86	804	89
25	Johns Hopkins, '16	85	90	94	82	84	90	80	94	85	784	87
26	Johns Hopkins, '16	63	61	70	72	67	88	64	84	48	617	69
27	Johns Hopkins, '16	78	80	80	79	76	85	91	93	76	738	82
28	Johns Hopkins, '16	87	93	84	89	75	80	87	83	89	767	85
29	University of Maryland, '16	80	97	84	92	80	93	95	92	76	789	88
30	University of Maryland, '16	83	90	71	76	77	84	90	89	75	735	82
31	Johns Hopkins, '16	85	85	90	90	80	90	75	90	80	765	85
32	College Physicians and Surgeons, Balto., '15	62	..	65	..	75	75	..	..	70	...	..
33	Maryland Medical College, '10	Failed to appear.										
34	University of Maryland, '16	96	98	93	95	91	100	93	88	91	845	94
35	Johns Hopkins, '16	84	91	71	91	75	95	94	98	80	779	87
36	University of Maryland, '16	73	82	60	61	82	76	80	79	56	649	72
37	University of Maryland, '16	54	94	83	63	79	75	66	81	80	675	75
38	Medical College of Virginia, '15	50	..	60	63	..	80	..	..	..	...	..
39	Johns Hopkins	98	..	..	..	..	98	90	..	93	...	..
40	Johns Hopkins, '16	92	81	84	86	83	87	85	79	78	755	84
41	University of Maryland, '16	81	90	75	85	94	90	75	93	85	768	85
42	Johns Hopkins, '16	60	89	85	88	79	80	76	86	80	723	80
43	University of Maryland, '15	79	..	..	..	75	75	75	75	76	...	..
44	University of Maryland	73	..	..	..	..	75	78	..	60	...	..
45	University of Maryland, '16	84	87	75	75	77	89	80	86	79	723	80
46	University of Maryland	61	..	..	..	..	65	51	..	62	...	..
47	University of Maryland	48	..	..	..	..	75	77	..	78	...	..
48	Johns Hopkins, '16	82	87	90	83	83	75	76	77	77	730	81
49	Johns Hopkins, '16	97	90	93	91	83	86	94	89	84	810	90
50	Johns Hopkins, '15	88	81	90	94	79	88	91	80	87	778	86
51	Johns Hopkins, '16	65	75	89	78	77	75	75	83	72	689	77
52	Baltimore Medical, '13	55	72	75	81	75	78	80	66	57	639	71
53	University of Maryland, '15	79	97	86	94	89	98	89	79	89	800	89
54	Baltimore Medical, '09	70	77	59	72	72	75	71	74	78	648	72
55	University of Maryland, 16	82	87	70	83	80	82	88	78	82	732	81
56	Johns Hopkins, '16	92	76	89	77	84	95	83	91	89	776	86
57	Johns Hopkins, '16	82	71	87	82	80	90	77	85	89	743	83
58	Johns Hopkins, '16	75	85	88	89	86	90	88	85	81	767	85
59	Maryland Medical College, '12	46	..	35	..	79	..	..	..	..	...	..

Summary of Results of Examination Held by the Board of Medical Examiners of Maryland, June 20, 21, 22 and 23, 1916.—(*Continued.*)

No.	College of Graduation	Anatomy	Surgery	Pathology	Obstetrics	Practice	Chemistry	Materia Medica	Therapeutics	Physiology	Total	Average
60	University of Maryland, '16	62	76	65	75	82	60	75	58	60	613	68
61	University of Maryland, '16	..	..	..	..	..	60	..	.	..	...	..
62	University of Maryland, '16	85	80	85	82	88	85	88	85	81	768	85
63	George Washington University, '16	81	81	75	90	80	90	86	88	88	759	84
64	Johns Hopkins, '16	95	82	82	96	83	100	91	80	87	796	88
65	Johns Hopkins, '16	61	78	72	84	75	85	70	67	83	675	75
66	Maryland University, '16	45	82	68	75	70	65	54	71	63	593	66
67	Medical College of Virginia, '15	80	90	69	66	81	75	80	96	83	729	81
68	University of Maryland, '16	79	95	89	93	82	75	82	84	84	763	85
69	Johns Hopkins, '16	76	82	80	80	80	80	80	71	93	722	80
70	University of Maryland, '16	68	92	75	86	83	80	87	91	90	752	84
71	University of Maryland, '16	69	87	73	68	68	50	67	66	54	602	67
72	University of Maryland, '16	69	93	82	86	85	75	83	69	89	731	81
73	University of Maryland, '16	75	80	75	81	72	75	75	70	81	684	76
74	Johns Hopkins, '16	77	77	93	75	75	75	80	86	77	709	79
75	Maryland Medical College, '13	22	..	..	..	..	60	..	..	48	...	..
76	Johns Hopkins	82	..	..	..	..	80	77	..	85	...	..
77	Bennett Medical, '14	35	..	25	..	61	60	..	..	..	...	..
78	University of Maryland	82	..	..	..	..	80	75	..	85	...	..
79	University of Maryland, '16	75	87	63	76	89	78	77	79	80	704	78
80	University of Maryland, '16	Failed to appear.										
81	University of Maryland, '15	67	81	72	92	62	78	50	78	83	663	74
82	Baltimore Medical College	62	..	..	..	..	30	70	..	54	...	..
83	University of Maryland, '16	80	93	80	77	86	88	81	68	80	733	81
84	University of Maryland, '16	Failed to appear.										
85	University of Maryland, '16	75	79	78	63	89	80	80	80	87	711	79
86	Johns Hopkins	93	..	..	..	..	95	80	..	91	...	..
87	Johns Hopkins, '16	71	72	78	78	87	95	75	95	78	729	81
88	Johns Hopkins, '16	86	95	89	82	78	89	88	80	87	765	85
89	Johns Hopkins, '16	83	93	80	87	87	97	83	86	95	791	88
90	Johns Hopkins, '16	77	90	83	88	80	90	92	92	85	777	86
91	University of Maryland, '16	91	91	84	85	87	59	83	61	87	728	81
92	Johns Hopkins, '16	Failed to appear.										
93	University of Maryland, '16	60	87	75	63	71	45	75	86	60	622	69
94	University of Maryland, '16	73	93	75	93	88	85	76	59	76	718	80
95	University of Maryland, '16	83	86	83	93	82	78	..	..	87	...	..
96	Maryland Medical College, '12	..	..	..	..	..	30	70	..	60	...	..
97	University of Maryland, '16	61	83	69	64	75	80	68	73	80	653	72
98	University of Maryland, '16	84	85	66	95	88	85	92	81	83	759	84
99	University of Maryland, '16	52	91	72	62	83	30	70	85	66	611	68
100	University of Maryland, '16	73	90	88	90	70	80	81	88	78	747	83
101	University of Maryland, '16	84	80	75	80	78	100	84	94	75	768	85
102	University of Maryland, '16	53	80	80	81	80	90	69	84	75	701	78
103	University of Maryland, '16	63	90	80	85	80	80	82	85	83	728	81
104	University of Maryland, '16	Failed to appear.										
105	University of Maryland, '16	61	86	78	80	83	75	75	75	75	688	76
106	University of Maryland, '16	77	77	80	74	81	75	75	76	88	703	78
107	College Physicians and Surgeons, Balto., '14	Failed to appear.										
108	University of Maryland, '16	62	80	75	78	77	65	76	69	88	661	73
109	College Physicians and Surgeons, Balto., '14	.	..	75	..	..	80	..	..	..	...	..
110	University of Maryland	56	..	..	..	..	80	60	.	87	...	..
111	Harvard Medical, '15	..	75	..	.	..	85	81	89	..	...	..
112	Johns Hopkins, '15	88	86	94	86	75	90	81	79	93	772	86

In the above summary an average of 75 is required of those participating in the examination for the first time in order to secure a license. Those who have failed are eligible to re-examination at the expiration of six months. They are then obliged to receive a rating of 75 in each branch in which they are re-examined before license can be issued. Under the Maryland laws, students who, at the end of their second year, have successfully passed their college examination in Anatomy, Chemistry, Materia Medica and Physiology, are entitled to examination by the Board of Medical Examiners in these branches. The ratings made by these students in the examination known as the "second year examination" are carried forward and made part of the final examination, when an average of 75 must be obtained to secure a license. We trust that this statement will make clear the apparently incomplete examination of certain participants.

REPORT OF BOARD OF MEDICAL EXAMINERS OF MARYLAND.

QUESTIONS AT THE JUNE (1916) EXAMINATIONS.

CHEMISTRY.

1. Give symbol, valence and one important compound of each of ten (10) elements.

2. Describe nitrogen. In what form is it chiefly eliminated from the body? Name several compounds containing nitrogen and give formulæ.

3. (a) Describe lead. Which of its compounds is used in medicine? (b) From what sources may chronic lead poisoning come?

4. Give two (2) antidotes for phosphorous and explain their action.

5. Give a chemical antidote for each of the following and explain mode of action: Phenol, nitric acid, oxalic acid, mercuric chloride.

6. (a) Wood alcohol and grain alcohol; give formulæ and state the class of chemical substances to which they belong. (b) How would you treat a case of poisoning by the former, supposing the case were seen shortly after ingestion of the substance?

7. Why is a salt of mercury incompatible with KI?

8. What is synthesis? Name three synthetic organic substances used in medicine.

9. Describe method of determining the sugar content of the blood.

10. What substance is used as an antidote for most alkaloids, and how does it act?

ANATOMY.

1. Describe articulations of superior maxillary bone.

2. Describe the elbow joint, name the ligaments and give their attachments.

3. Give location and size of stomach when empty.

4. Superficial and deep origin and arrangement of fibers in commissure of optic nerves.

5. Where would you locate lesion in a case of asphasia?

6. Describe valves of heart.

7. Give origin, insertion, action and nerve supply of following muscles: (a) Obliquus internus. (b) Obturator externus. (c) Omohyoideus. (d) Serratus magnus.

8. Through what vessels would circulation be established after ligation of brachial artery in lower third?

9. Where are semi-circular canals located, and by what bony openings do they cummunicate with the middle ear and with the cranial cavity?

10. What is the mesentery?

THERAPEUTICS.

1. Flexile collodion and cantharidal collodion; their therapeutic uses.

2. Give the therapy of boric acid and methods of use.

3. Acid salicylicum; its therapy and usual combination for internal administration.

4. Sodium bicarbonas, properties and uses, incompatibles.

5. Spiritus aetheris nitrosi; its properties, uses and adult dose.

6. Aethylis chloridum; properties and uses, and objections to its use.

7. Alumen; properties and uses; values of the exsiccated.

8. Arseni trioxid, therapy, liquid preparations and state which can be administered with acids.

9. Hexamethylenamin; properties and uses; mode of action and danger from large doses.

10. Write a prescription in Latin, without abbreviation, containing four ingredients (with "Fowler's solution" as one), stating condition for which used.

MATERIA MEDICA.

1. Mercury. The official preparations, doses and incompatibles.

2. Lead. The official preparation and incompatibles.

3. Write a prescription using official terms, containing at least three ingredients, for diarrhea in an adult. Also one for a child two years old containing three ingredients.

4. Give the average hypodermic dose for an adult of apomorphine, morphia sulphate, nitroglycerin, atropine sulphate and pituitary extract.

5. Ergot. The official preparations and doses.

6. Potassium. The official preparations and doses.

7. Name three drugs which are motor nerve depressants; three which are sensory nerve depressants, and give adult dose of each.

8. (a) Define antiseptics and name three that are used internally, with adult dose. (b) Name three that are used externally and give strength of same, using official terms.

9. Write a prescription as a diuretic containing three ingredients, using official terms.

10. Define antitoxins and vaccines. Name those in most general use, give source and method of administering.

PRACTICE OF MEDICINE.

1. What diseases are liable to occur in the right inguinal region?

2. Give signs and symptoms of floating kidney.

3. Give causes of malaria and varieties of organisms.

4. Name the eruptive fevers and also give period of incubation in each.

5. What is hemophilia, and how treated?

6. Differentiate the terms delusion and hallucination, and also epistaxis, hemoptysis and hematemesis.

7. Give symptoms of diabetus mellitus and treatment.

8. Name causes of interstitial nephritis and the more common complications.

9. Describe empyema. Give diagnosis and treatment.

10. Give differential diagnosis between gout and arthritis deformans.

PATHOLOGY.

1. What are infective granulomata? Mention several and describe one.

2. Briefly discuss teratomata.

3. Describe ingrowing toe nail.

4. What are anerobic bacteria? Classify, and mention an organism belonging to each class.

5. Describe keloid tissue.

6. Define secretion, excretion, transudate, exudate.

7. What is meant by "sensitization?"

8. What are the general characteristics of sarcoma in contrast to carcinoma?

9. Describe the beef tapeworm.

10. What are the means used to prove that death has positively occurred? What is rigor mortis?

SURGERY.

1. Give cause and treatment of chronic suppuration of the middle ear.

2. Give diagnosis, symptoms and treatment of gonorrheal conjunctivitis.

3. Give signs, symptoms, diagnosis, complications and treatment of philebitis.

4. Give symptoms and treatment of Potts' disease.

5. Give the differential diagnosis between fracture of neck of humerus and dislocation of shoulder joint. Outline the treatment of one.

6. What are the causes of ischiorectal abscesses? Give symptoms and treatment.

7. Describe a rodent ulcer. Give the structures in which rodent ulcer mostly develops, and give surgical treatment.

8. If called to a patient with a compound fracture of a leg in the lower third, which had been kicked by a horse in a barnyard, state in detail how you would treat such a case.

9. Give varieties of ileus, and some of the causes of each. Outline treatment.

10. Give the symptoms and physical signs of carcinoma of the breast.

OBSTETRICS AND GYNECOLOGY.

1. Define a trefoil, horseshoe, succenturiata and battledore placenta.

2. What is a caput succedaneum, and how is it formed?

3. Describe your method of preventing lacerations of the perineum during delivery.

4. What is your treatment in the delivery of twins with heads interlocked?

5. What is the danger of a prolapsed cord, and how do you treat it?

6. What is phlegmasia alba dolens, its cause and treatment?

7. How do you diagnose a face from a breach presentation?

8. Why is a face presentation hard to deliver?

9. Give differential diagnosis between a retroflexed gravid uterus and a pregnancy complicated by ovarian tumor.

10. What is the usual cause af salpingitis? Describe its course and treatment.

PHYSIOLOGY.

1. (a) Describe the normal flow of blood through the arteries, capillaries and veins, and factors which cause the flow of each. (b) Give the relative rate of circulation in the arteries, capillaries and veins, and state how long it takes the blood to make a complete circuit of the body. (c) What is the total quantity of blood as compared with weight of the body?

2. (a) Define absorption and secretion. (b) Give some of the theories of absorption. (c) State difference between internal and external secretions, and give examples.

3. (a) Define animal heat and give sources. (b) State some of the conditions which produce variations in the normal temperature. (c) Give normal temperature in axilla, mouth and rectum.

4. What is accomplished physiologically by the portal circulation?

5. Where is the respiratory center located, and what is internal respiration?

6. (a) What are the functions of the bile—the ingredients and how secreted? (b) Give tests for bile salts and bile acids.

7. Describe the function of the eustachian tube, retina, iris, cornea and tympanic membrane.

8. Give the locations at which the various heart sounds can be best heard, and state the cause of each sound.

9. Discuss briefly the physiology of the nervous system and give a classification of the nerve cells.

10. What is blood pressure—mode of ascertaining—the average blood pressure in male and female?

MARYLAND MEDICAL JOURNAL

NATHAN WINSLOW, M.D., *Editor.*

Associate Editors:

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HUGH H. YOUNG, M.D. — A. SAMUELS, M.D.
RICHARD H. JOHNSTON, M.D.

BALTIMORE, SEPTEMBER, 1916

DEATH OF DR. JOHN BENJAMIN MURPHY.

ON Friday, August 11, the medical profession of this country, and of all countries, suffered an immense loss in the death of Dr. John Benjamin Murphy of Chicago. Dr. Murphy had been ailing and did not attend the meeting of the American Medical Association in June on account of indisposition, but it was not supposed that his condition was serious. He was present at the meeting of the American Surgical Association at Washington in May and took part in the proceedings. For a great many years Dr. Murphy has been one of the most conspicuous surgeons in America, and by some he was considered the greatest surgeon in the world. His investigations and communications cover almost the whole range of surgery. His first great contribution to practical surgery was the Murphy button for uniting easily and safely severed intestines and for performing gastro-enterostomy. By means of this device a great impetus was given to the surgery of the intestinal tract and many operators learned to perform successful operations in what had been hitherto an almost prohibited field. While the Murphy button has a field of usefulness, it has some serious disadvantages and its use is now much restricted, as an expert operator can do a gastro-enterostomy or an entero-enterostomy by suturing in nearly as short a time as with the button, and not leave a large foreign body in the intestinal tract that may cause trouble. The writer well remembers the first time he ever saw Dr. Murphy, which was at the Ninth International Medical Congress, held in Washington in 1887, at which time he reported several successful operations for gunshot wounds of the intestines. Since that time he has taken a prominent part in almost every important medical gathering in this

country. While he has enriched surgery in many directions, in recent years his greatest contributions have been in the field of bone and joint reconstructive work; and even Sir Arbuthnot Lane called him the greatest bone surgeon in the world.

As a clinical teacher Dr. Murphy was unsurpassed, and those who had the privilege of attending his clinics at the Mercy Hospital, Chicago, will long remember the mental stimulation and inspiration derived therefrom. Fortunately, these clinics have been appearing in book form for several years and are accessible to all who desire to profit thereby. He was a man of great fluency, never hesitating for a word and speaking with great rapidity in a high-pitched voice that carried to every part of the auditorium. In person he was very tall and thin and of striking appearance. In recognition of his great attainments and of his remarkable personality he was honored with the presidency of the American Medical Association in 1910 and with that of the Clinical Congress of Surgeons of North America in 1914. A mighty man indeed has fallen, and it will be difficult to find another who can take his place.

DISEASE DANGERS OF WAR WITH MEXICO.

Two years ago *The Journal of the American Medical Association* discussed the sanitary problems which must be met if our troops should have to go into Mexico for any length of time. "Today," says *The Journal* for June 24, 1916, "these problems should be considered again. The State militia is mobilizing; large bodies of men are already being concentrated in camps, and soon, perhaps, some will be moving to the Mexican border, if not into Mexico. The guarding of the border is likely to be the duty which will fall particularly to the militia and less trained troops. Actual invasion, if it should come, will no doubt devolve on the regular army.

"Typhoid and smallpox vaccination have practically removed the menace to life from these diseases under military conditions. The militia, however, has not been immunized against typhoid even approximately to the extent that the regular army has been vaccinated. The danger from dysentery, which is still a menace

to men in army camps, has been materially lessened through improvements in the preservation and protection of foodstuffs and through increased facilities for the transportation of supplies. Amebic dysentery may be prevented by strict supervision of water supply and filth disposal. The use of emetin in the treatment of this condition will aid in rapidly eradicating such cases as may occur. Malaria and yellow fever, conquered through eradication of the mosquito and prevention of mosquito bites, are no longer to be feared. Cholera, preventable by cleanliness, and typhus fever, the scourge of Mexico, also have been studied, and their prevention can be accomplished by the enforcement of adequate sanitary regulations.

"The sanitation of camps has developed into a science. In the development of this science American investigators—many of them officers of the Medical Corps of the United States Army and of the Public Health Service—have led the way, and they may be depended on to carry out these measures to the fullest extent. Typhus fever is particularly a Mexican problem. It has been a factor in the present European war, and the measures instituted abroad show how completely this disease may be controlled. Much has been said in connection with the European war of gas gangrene, tetanus and secondary wound infection. The frequency of these infections has been attributed to the cultivation of the soil in the region in which the war is being conducted. If this be the cause, this condition is certainly not to be feared in Mexico. Much of the warfare in Europe has been trench warfare, and diseases peculiar to this method of warfare have frequently been discussed. The problem in Mexico would appear to be a different one. In any event, it hardly seems likely that the old saying that 'disease kills more men than bullets' will hold true.

"We can be sure that American medical officers of every branch of the service will do all that is humanly possible to protect our soldiers in the field. As a result of their service, the American soldier will be safeguarded so that the maximum number of efficient fighting units will be continually available to those concerned with the action of troops at the front."

Medical Items.

A list of physicians who have passed the examination given by the Board of Medical Examiners of Maryland was given out by Dr. Herbert Harlan, president of the board, this morning. The names are:

William W. Anderson, John N. Andrews, Herman S. Applebaum, Richard T. Arnert, Bartus T. Baggott, John C. Baldwin, George A. Bawden, Edward H. Benson, Hyman S. Berman, Sam Brock, Charles R. Brooke, Benjamin B. Brumbaugh, Henry F. J. Buettner, Charles H. Burton, Paul W. Christman, Henry B. Conrad, Luigi D. Di Stefano, Joseph P. Eidson, James A. Etheridge, John E. Evans, Ruth Fairbank, Bernard J. Ferry, William P. Finney, Jr., Hugh C. F. Gill, David H. Hallock, John W. Harris, Charles M. Harmon, Thomas J. Heldt, Jack M. Hundley, Bernard S. Jacobson, Benjamin M. Jaffe, Bernard R. Kelley, Joseph S. Lawrence, Allen D. Lazenby, Asa L. Lincoln, Edward K. Leo, Frank C. Marino, Walter B. Martin, Henry A. Merkel, Milo K. Miller, Joseph E. Moore, Milfert W. Myers, Joseph G. O'Brien, Vincent Joseph Oddo, William F. O'Malley, Sidney O. Reese, Jr., Adam William Reier, Horace W. Reid, Charles A. Reifschneider, Francis E. Roberts, Harry William Rosenthal, Francis F. Ruzicka, Cyril I. Sease, Richard Lee Silvester, Samuel Snyder, James S. Speed, Richard E. Stifel, Alan C. Sutton, Edward P. Thomas, Henry M. Thomas, Jr., William C. Thomas, Prescott S. Tucker, Victor R. Turner, Norwood W. Voss, William F. Williams.

The International Health Commission of the Rockefeller Foundation hereby announces the change of its name to International Health Board of the Rockefeller Foundation.

Dr. J. Clement Clark has been re-elected superintendent of the Springfield State Hospital for the Insane, Sykesville.

Dr. Henry Lee Smith, class of 1894, of the Maryland Medical Reserve Corps, has been ordered to Mt. Gretna, Pa., for duty.

Dr. George B. Wolff of the Sheppard and Enoch Pratt Hospital has returned from a vacation at the home of his parents in Myerstown, Pa.

Dr. Lewis A. Sexton, second assistant superintendent at Johns Hopkins Hospital, who has been acting as admitting physician for the last month, will leave tomorrow with Mrs. Sexton to spend a month's vacation in Alaska and Northwestern Canada. Dr. and Mrs. Sexton will "rough it" during part of the long trip and will fish and hunt. Dr. Sexton is an expert fisherman as well as angler.

Dr. Stewart V. Irwin, Baltimore, returned to America July 11 after a partially successful attempt to inspect prison camps in Germany.

Dr. and Mrs. Frank Martin closed their home, 1000 Cathedral street, and left for the North, where they will spend the late summer.

Dr. and Mrs. Irwin J. Beach and Miss Ethel G. Beach of West Lafayette avenue are spending some time at Ocean Grove, Asbury Park and Newark, N. J.

Dr. and Mrs. Joseph Irwin France, class of 1903, of 15 West Mount Vernon Place, who are spending the summer at their country place at Port Deposit, left for a motor trip through the Valley of Virginia.

Dr. E. P. Smith, class of 1912, College of Physicians and Surgeons, superintendent of Mercy Hospital, returned yesterday from his vacation in the mountains of West Virignia and in Eastern Ohio.

The second quarterly meeting of the deputy State health officers was held at the Medical and Chirurgical Faculty Building in Baltimore. Dr. C. Hampson Jones presided and an address was made by Dr. John S. Fulton, secretary of the State Board of Health. Newly appointed health officers received their commissions. An open discussion of the various phases of the domestic quarantine and contagious diseases was held.

Dr. James J. Mills, instructor of ophthalmology at Johns Hopkins Medical School, sailed August 6 on the Rochambeau for Bordeaux, France. He has been engaged by the chief physicians of the town of Biarritz to assist in the treatment of injuries to the eyes of the soldiers, and expects to return in September.

Dr. William H. Welch sailed from New York, August 6, for England to study institutions from which he may get ideas for the organization of the Rockefeller School of

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BALTIMORE—MARYLAND

Hygiene and Public Health, which will be established in Baltimore. Dr. Welch will also study the manner in which England has been organized in scientific and other lines for the war as head of the National Academy of Sciences. He will be accompanied by Dr. George Ellery Kale, chariman of the organization committee of the academy.

Dr. James J. Mills, Baltimore, sailed for France on the Rochambeau, August 5, for war service with the French army.

Dr. Howard Bratton, Elkton, has been appointed division physician of the Pennsylvania system during the absence of Dr. Henry A. Mitchell, chief surgeon of the First Infantry, Maryland National Guard, who is now on the Texas border.

Drs. Howard A. Kelly and Thomas S. Cullen, Baltimore, are spending the summer near Magnetawan, Ont.

Dr. C. Howard Moses of Baltimore has been appointed chief resident surgeon of the Youngstown (Ohio) City Hospital.

DEATHS.

Dr. William T. Cathell, the well-known throat specialist, 1636 East Baltimore street, son of Dr. D. W. Cathell, died August 29, 1916, at the Hotel Emerson, from an organic affection of the heart, aged 51 years.

Andrew Jacob Koontz, M.D., Independence, Va., College of Physicians and Surgeons, Baltimore, Md., 1887; a practitioner and druggist, died at his home June 20 from heart disease, aged 57 years.

Robert M. Marshall, M.D., Shenandoah Junction, W. Va., University of Maryland, 1886; for half a century a practitioner of West Virginia, died June 22, aged 72 years.

Jacob H. Hartman, M.D., Baltimore, Md., a graduate of the University of Maryland and of Princeton, died at Mercy Hospital July — from a complication of diseases, aged 68 years.

John Selby Morris, M.D., Charleston, W. Va., a graduate of the College of Physicians and Surgeons, Baltimore, 1904; a fellow of the American Medical Association, died at his home May 12, aged 38 years.

James B. Drake, M.D., Norwich, N. Y., College of Physicians and Surgeons, Baltimore, 1882; a member of the Medical Society of the State of New York; visiting physician to the Norwich Hospital and Chenango Valley Home, died suddenly while driving his automobile July 12, aged 63 years.

Thomas P. Reville, M.D., Folkston, Ga., College of Physicians and Surgeons, Baltimore, 1887; a fellow of the American Medical Association, and a physician of Charlton County, Ga., died at his home June 20 from heart disease, aged 59 years.

Romulus Alonzo Whitaker, M.D., Kinston, N. C., College of Physicians and Surgeons, Baltimore, 1885; a member of the Medical Society of the State of North Carolina, died at his home July 18 from typhoid fever, aged 59 years.

Otho C. Wright, M.D., Jarratt, Va., College of Physicians and Surgeons, Baltimore, 1893, aged 48 years; a fellow of the American Medical Association; a member of the State Board of Medical Examiners and State Board of Health, and once president of the Medical Society of Virginia, while driving his automobile over a grade crossing at Owens' Store, July 8, was struck by an Atlantic Coast Line freight train and instantly killed.

Benjamin Wolff, M.D., New York, Baltimore University, 1901, aged 42 years; assistant surgeon for eye and ear department of Sydenham Hospital and the German Policlinic, died at his home July 23.

George W. Righter, M.D., Cynthiana, Ky., Homeopathic Hospital College, Cleveland, 1872; a Confederate veteran, died at his home July 25 from arteriosclerosis, aged 72 years.

Joseph P. Ewing, M.D., Manchester, N. C., Baltimore University School of Medicine, 1892; formerly of Dillon, S. C., died at a hospital in Fayetteville, N. C., July 21.

Samuel William Hammond, M.D., Lambert's Point, Norfolk, Va., University of Maryland, Baltimore, 1905, aged 43 years, while answering a professional call July 23, sustained a skull fracture in a collision between his motorcycle and a trolley car, and died in the Norfolk Protestant Hospital July 24.

FELLOWS' Compound Syrup of Hypophosphites

1866—1916

Not a new-born prodigy or an untried experiment, but a remedy whose usefulness has been fully demonstrated during half a century of clinical application.

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Reject < Cheap and Inefficient Substitutes
Preparations "Just as Good"

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MEDICAL MANFG. CO. LTD.
26 CHRISTOPHER ST.
NEW YORK

NEW METHOD OF MAKING ANTI-HOG-CHOLERA SERUM.

SPECIALISTS FIND WAY TO PRODUCE A CLEAR, STERILIZED PRODUCT FREE FROM FOOT-AND-MOUTH VIRUS.

Office of Information, U. S. Department of Agriculture.

A NEW method of preparing anti-hog-clorea serum, which permits the economical production of a clear sterilized product, has just been described in the *Journal of Agricultural Research* of the U. S. Department of Agriculture. The advantage claimed for the new method is that it makes possible the production of an anti-hog-chlorea serum which can be quickly sterilized by heat to a point that will absolutely kill any germs of foot-and-mouth disease and so yield a serum that is absolutely safe even if taken from a hog which might harbor foot-and-mouth disease and yet give no indication of being infected.

The method, as described by its discoverers, Drs. Marion Dorset and R. R. Henley of the Biochemic Division, Bureau of Animal Industry, consists in adding a slight amount of an extract from ordinary white navy beans to the defibrinated hog-cholera-immune blood, which has been the form of the serum used in the past. The addition of this bean extract causes the red cells of the blood to agglutinate, and when the mixture is whirled on a centrifuge the red cells pack together and form a rather stiff jelly-like mass. It is then possible to pour off a clear serum, leaving behind the red cells, which play no part in preventing hog cholera, and which, in fact, simply tend to dilute the serum and render its sterilization by heat impracticable. To increase the yield of clear serum the discoverers added a small amount of ordinary salt, and found that they obtained from 70 to 74 per cent. of clear serum. The clear serum thus obtained, it was found, could be heated for 30 minutes at a temperature of 60 degrees centigrade without changing its constituency or lessing in any way its effectiveness in preventing hog cholera. The heating to this point for this time is more than sufficient to kill any germs of foot-and-mouth disease which might accidentally be present. Practical tests with hogs show that probably all of the antibodies useful in combating hog cholera were retained in the serum, and the red cells extracted contained so few, if any, of these valuable bodies as to make the residue of red cells useless in preventing the disease.

Before the clear serum was developed many attempts were made to sterilize by heat in a practicable way the ordinary defibrinated blood. It was found, however, that heating the old product up to 60 degrees centigrade resulted in more or less complete coagulation of the defibrinated blood, and in the destruction of the serum so far as its commercial worth is concerned. It was found that the highest temperature that could be used was 50 degrees centigrade, and it was necessary to keep the old serum at this temperature for 12 hours to make certain that the virus of foot-and-mouth disease was killed. Heating serum at a steady temperature over this long period in ordinary practice is difficult and too expensive.

Attempts were also made to make a clear serum by centrifugalizing. It was found, however, that while the centrifuge would separate to some extent the red cells, they were in such shape that it was difficult to separate the serum completely. An important quantity of antibodies were left behind in the red clot,

Atlantic City

The Newlin Haines Co. announce the opening of the new 12-story fire-proof addition to the

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Western Maryland Dairy

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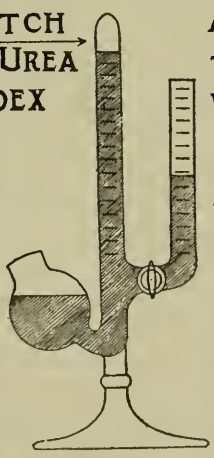
BACTERIAL tests show that the milk received by us primarily contains a lower average percentage of bacteria than is usual. It is then subjected to pasteurization after the most scientific and modern methods, thus giving us a distinctive product. Our hygienic plant, **No. 1117 Linden Avenue,** is at all times open to the inspection of physicians and others who are interested.

WATCH the UREA INDEX



A SMALL ELIMINATION OF UREA WILL GIVE SYMPTOMS VARYING FROM A SLIGHT HEADACHE to UREMIC CONVULSIONS

In BRIGHTS and other CASES of NEPHRITIS the UREA ELIMINATION Can be RAISED, using

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and the resulting product was a cloudy rather than a clear serum. With this process, moreover, it was possible ordinarily to secure only about 50 per cent. of serum. Under the new method it is possible to secure as high as 74 per cent. of clear serum, which in actual test has proved to be fully potent. This clear serum, moreover, can be completely sterilized in 30 minutes, whereas the old serum had to be heated steadily for 12 hours.

The new form of serum, as far as the department knows, is not yet being made or put on sale by the commercial serum laboratories. As this process was discovered by the Federal Government, anyone in the United States is free to use it.

THE THREE "C'S" OF CARING FOR MILK IN THE HOME.

Office of Information, U. S. Department of Agriculture.

THE three "C's" for the proper care of milk in the home, according to the dairy specialists of the U. S. Department of Agriculture, are: Keep milk Clean, Cold, Covered.

Milk is a highly perishable food, and the length of time it will remain sweet and safe, especially for children, depends, the specialists say, almost entirely upon the constant care it receives from cow to consumer. Milk passes through three agencies—the producer, the dealer and the consumer. If the first two have done their part, clean, safe milk will be delivered, thoroughly chilled, to the consumer. The consumer's responsibility begins the moment the milk is delivered at his doorstep.

Because milk poured from vessel to vessel on the street is very liable to contamination from dust, manure particles and germs, milk is best delivered in capped bottles. If bottled milk cannot be obtained, the housewife should try to have someone in the family receive the milk in a clean, scalded utensil; cover it instantly, and put it without delay into the refrigerator or the coldest available place. Under no circumstances should an uncovered pitcher, bowl or pan be left out on the porch to receive bulk milk. The vessel, both before and after the milk is poured into it, is accessible to flies, and collects particles of dust and dirt.

Even in the case of bottled milk, however, the consumer must see that the bottle is not left out in the heat for a moment longer than is necessary. Milk should be delivered and kept at a temperature of 50 degrees F. or lower—the colder the better. At such temperatures bacteria develop very slowly, and milk undergoes little change until consumed. A slight rise in temperature above this point, however, permits bacteria to multiply rapidly, and brings about rapid deterioration of the milk, which may render it unfit for ordinary use and make it highly dangerous for babies and little children. For this reason bottled or other milk should not be allowed to remain in a warm place, as on a sunny porch or in a hot kitchen, for a moment longer than is necessary.

DELIVERY OF MILK IN HOT WEATHER.

In hot weather the best plan is to have the milkman put the milk directly into the refrigerator, because at that time of year milk cannot be kept properly without ice. If a refrigerator is not available, provide a small box containing ice, and if ice is unobtainable, provide some tight container with insulated walls that keep the heat from getting rapidly to the cold milk. A home-made

Mellin's Food is successfully used

in

Summer Diarrhea for it furnishes

immediately available nutrition well suited

to spare the body-protein.

to prevent a rapid loss of weight.

to resist the activity of putrefactive bacteria.

to favor a retention of fluids and salts in the body tissues.

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fireless cooker is admirable for this purpose, especially if partially filled with ice. In the absence of any of these devices, arrange with the milkman not to leave the milk in the sunlight, but to put it in the coolest, shadiest place around the house.

HANDLING MILK IN THE HOME.

In handling milk around the home, do not pour it from one vessel to another until it is to be consumed. Do not let the bottle of milk remain out of the refrigerator a moment longer than is necessary. Keep the milk covered, using paper caps or an inverted tumbler on bottles, or storing it in covered utensils. Any household utensil that is to be used as a vessel for keeping milk should first be cleaned thoroughly and scalded.

Before opening a bottle of milk, wash and wipe the neck and outside of the cap with water and a clean cloth. The little depression on the top of the cap may collect dust or water, and any milk that leaks out may attract flies. Lift out the cap with a pointed instrument, so that the outside of the cap, which may be contaminated, will not be pushed down into the milk. Each time the milk is to be poured from the bottle it is a wise precaution to wash the neck as described.

MILK IN A REFRIGERATOR.

The refrigerator where milk is stored should be cleaned regularly, especial care being given to keeping the drip pipe free and clean. The ice rack also should be cleaned, and any place where food is kept or milk stored should be scalded occasionally with sal-soda solution. The refrigerator, even though cold, may quickly be contaminated by a few drops of spilled milk, or by small particles of food. No matter how clean the refrigerator, milk should never be kept in an open vessel. As milk absorbs odors easily, such food as fish, cabbage or onions should not be kept in proximity to it.

CLEAN EMPTY BOTTLES.

As soon as a milk bottle is emptied, rinse it thoroughly with cold water. Do not return dirty bottles, and do not use milk bottles except to hold milk. Returning dirty bottles to the milkman may mean that a few days later either you or your neighbors will get contaminated milk. Milk bottles should never be taken into a sickroom. In case of infectious or contagious disease, all bottles should be boiled thoroughly, and should not be returned to the dealer without the express permission of the attending physician. Such diseases easily can be made epidemic through disregard of this precaution.

WHERE THERE ARE CHILDREN.

Care of milk, important for all, is a vital necessity in a home where there are children. It is absolutely essential to the safety of babies. No intelligent mother will leave to an ordinary servant the task of caring for or preparing the milk for her baby. Mothers of small children should get from their own physicians explicit directions for the proper handling of milk and for cleaning and sterilizing nursing bottles. Pamphlets on infant-feeding may be obtained from the municipal milk stations or health officers. Milk for babies cannot be kept too cold, and too much care cannot be given to keeping it clean and covered.

Further information on this subject may be had by writing to

SABALOL FOR NASAL CATARRH SPRAY.

AFFORDS PROMPT RELIEF IN ALL CATARRHAL DISEASES REACHED BY LOCAL APPLICATION

Pharyngitis, Laryngitis, Hay Fever, Acute Coryza, Rhinitis, Ozena and Inflamed Mucous Membrane in All Parts of the Body

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Manufacturers and Dispensers of Pure Medicines (Wholesale and Retail)

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Optometrists and Opticians

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Ex-President Cleveland said:

No investment on earth is so safe, so sure, so certain to enrich its owners as undeveloped realty. I always advise my friends to place their savings in realty near some growing town. There is no such savings bank anywhere.

Following this suggestion, I offer a few large lots, 125′ x 250′, in a new and growing Northwestern development just outside of Baltimore City at less than 4 cents per square foot. Mail a postal for maps, pictures and cash discounts. Also "Easy Terms".

RICHARD W. COOK, - - - 14 E. Lexington Street

The purity and quality of the salts used insure gratifying freedom from gastric disturbance or "bromism"-even on prolonged administration.

PEACOCK'S BROMIDES

Used with conspicuous success in Epilepsy, Uterine Congestion, Headache, the Reflex Neuroses and whenever a reliable antispasmodic or sedative is required.

CHIONIA

Affords hepatic stimulation without purgation---a true cholagogue.

PEACOCK CHEMICAL CO.

St. Louis, Mo.

the U. S. Department of Agriculture, Washington, D. C., for Farmers' Bulletin 413, "Care of Milk and Its Use in the Home."

PREVENTION OF INFANTILE PARALYSIS.

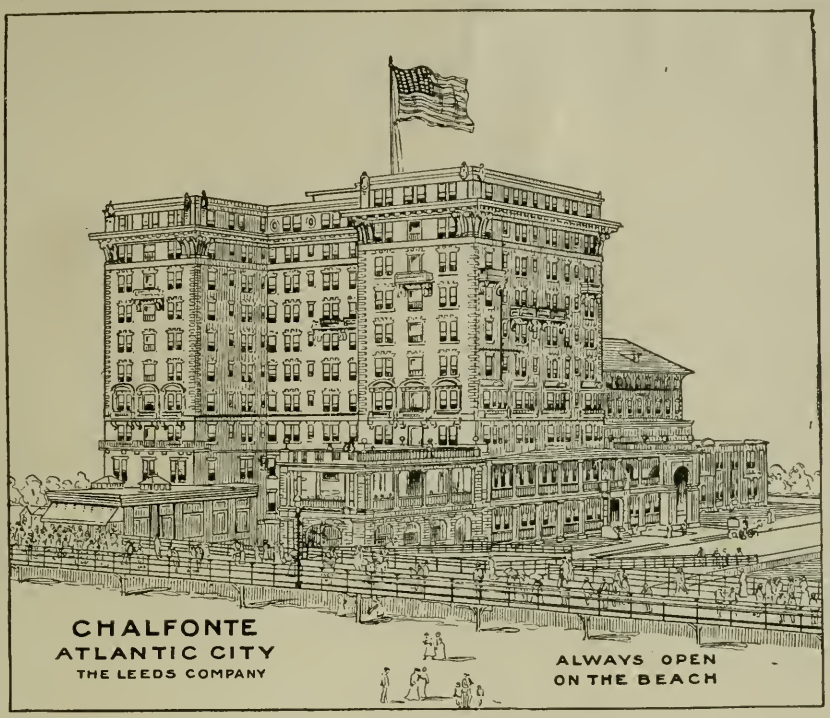
To control the present epidemic of infantile paralysis, according to a statement issued by the United States Public Health Service recently, the chain of infection between persons harboring germs of the disease and the well members of the community should be broken. Infantile paralysis is probably caused by a very minute organism found in the nasal, mouth and bowel discharges of those who have the disease or who are carriers of the germ without themselves suffering from the ailment. All of the steps in the spread of the infection are not known, but if this germ can be prevented from passing from the infected to the well person, the disease will cease.

Infantile paralysis is not a disease of recent origin. Sporadic or scattered cases have occurred throughout the country for many years, but it is only during the last decade that the infection has assumed epidemic proportions in the United States. The present epidemic in New York City, on account of its magnitude and virulence, has awakened the residents of many communities to the danger of the importation of the disease into their own midst. This danger is real, but if due precautions are exercised, it is believed that the epidemic will subside.

The actual control of the present epidemic must be left to the city, State and Federal health authorities. These organizations will properly quarantine and care for affected persons, prescribe sanitary measures and limit as may be necessary the travel of individuals in order to protect neighboring districts from the infection. Individuals and communities, however, can do much toward their own protection.

Poliomyelitis is probably spread, directly or indirectly, through the medium of infective secretions. Account must therefore be taken by communities of every means by which such secretions are disseminated. Promiscuous expectoration should be controlled. The common drinking cup affords a method for the interchange of material of this nature, and should therefore be abolished. Rigid cleanliness of glasses and utensils at soda fountains, in saloons and other public places should be enforced. Flies, roaches and other vermin, by coming in contact with infective secretions, may possibly convey them to our food and thus directly bring about the development of disease. Therefore, eliminate insects. Street and house dust bear a definite relation to the spread of many infections, and it is not unreasonable to presume that they may be a factor in the dissemination of infantile paralysis. Maintain strict cleanliness of streets, yards and alleys in order to prevent the breeding of insects and other vermin. See that all garbage and waste are properly cared for and collected at regular and frequent intervals. Guard all food supplies, especially milk and other perishable products. Digestive troubles of children arising from the ingestion of food of questionable quality may lower resistance. Assemblies of children in infected localities are to be discouraged, if not actually forbidden. While the above measures are in a sense general and applicable to many epidemic diseases, their importance should not be overlooked.

Individual preventive measures may be thus summarized:



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Nurse and Doctor on Call

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Automobile Repairing, Autogenous Welding, Machinists' Accessories and Tire Repairs. Electric Starting, Lighting and Ignition Systems Storage Batteries Charged and Repaired.

1801 Lovegrove Alley

Bet. Charles and St. Paul Sts. BALTIMORE, MD.

Summon a physician at once and immediately notify the health officer of the presence of the disease. If the disease is present in the community, medical aid should be sought whenever a child is sick, no matter how light the illness; many cases of infantile paralysis begin with a slight indisposition. Should the illness prove to be infantile paralysis, isolate the patient, place a competent person in charge and reduce all communication with the sickroom to a minimum. Hospital care is preferable, not only for the child, but in order to better safeguard against the spread of the disease. The sickroom should be well ventilated and screened. Nasal and mouth secretions should be received in cloths, placed in a paper bag and burned. The clothing of the child, the bed linen and the excretions should be disinfected in the same manner as for typhoid fever—that is, by boiling, the long-continued application of 5 per cent. carbolic or other well-recognized disinfectant. The same is true for dishes and drinking vessels. Nurses should exercise the same precautions as regards cleanliness of hands in caring for infantile paralysis patients as for those afflicted with other infectious diseases.

A child may convey the disease to others even after a lapse of several weeks. For this reason quarantine should be maintained for a considerable period, usually from six to eight weeks, and the above precautions should be adhered to during this time. Disinfection of the room following recovery is advisable.

DO YOU KNOW THAT—

Rural sanitation is a health protection to the city-dweller?

It's foolish to educate a boy and then let him die of typhoid fever?

The U. S. Public Health Service issues a free bulletin on the summer care of infants?

Exercise in the garden is better than exercise in the gymnasium?

Clean water, clean food, clean houses make clean, healthy American citizens?

The State of California has reduced its typhoid death rate 70 per cent. in the past 10 years?

Rats are the most expensive animals which man maintains?

It is estimated that the average manure pile will breed 900,000 flies per ton?

Dirty hands spread much disease?

A high bred dog has a right to have his birth registered—so has a baby?

The U. S. Public Health Service guards American ports to exclude foreign disease?

Health is a credit with the bank of nature?

A clean garbage can is a good example to the family?

Filth breeds flies—flies carry fever?

Slouchy postures menace health?

Health brings happiness—sickness sorrow?

The air-tight dwelling leads but to the grave?

Moderation in all things prolongs life?

The careless spitter is a public danger?

The death rate of persons under 45 is decreasing; of those over 45 it is increasing?

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Liquid Paraffin

(Medium Heavy)

Tasteless–Odorless–Colorless

Is Neither Absorbed Nor Digested

The fact that it is not absorbed by the epithelial cells and consequently not excreted through the milk, makes it a most satisfactory agent for nursing mothers.

Furthermore, Stanolind Liquid Paraffin removes the intestinal toxins, that would otherwise be absorbed into the blood.

Stanolind Liquid Paraffin acts on the whole intestinal canal, reaching the rectum intact, differing from a vegetable oil, the larger portion of which is digested and absorbed.

Stanolind Liquid Paraffin is a safe and dependable agent for continued internal administration.

A trial quantity with informative booklet will be sent on request.

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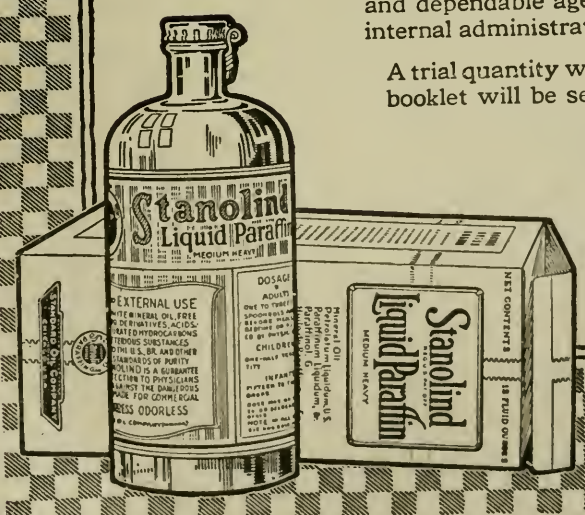

LOCAL DIRECTORY

THIS Directory is maintained mainly for the benefit of local firms seeking the patronage of physicians and their families. Only well established and reliable concerns will be represented, and doubtless the space at our disposal will be constantly in demand. In responding to these exploitations, the reader will find it mutually advantageous to mention the MARYLAND MEDICAL JOURNAL.

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The Original Front Laced Corset, superior to other Front Laced Corsets. All the different models from $2 to $25. Fittings by expert fitter and corsetiere.

Chattolanee Spring Water

Publishers' Department.

Danger Due to Substitution.

HARDLY another of all the preparations in existence offers a wider scope to imposition under the plea of "just as good" than the scientifically standardized Eucalyptol.

The most recent fraud practiced in regard to this product is an attempt to profit by the renown of the firm of Sander & Sons. In order to foist upon the unwary a crude oil, that had proved injurious upon application, the firm name of Sander & Sons is illicitly appropriated, the make-up of their goods imitated, and finally the medical reports commenting on the merits of their excellent preparation are made use of to give the desired luster to the intended deceit.

This fraud, which was exposed at an action tried before the Supreme Court of Victoria at Melbourne, and others reported before in the medical literature, show that every physician should see that his patient gets exactly what he prescribed. No "just as good" allowed.

Elixir Chloro-Calcium in Hay Fever.

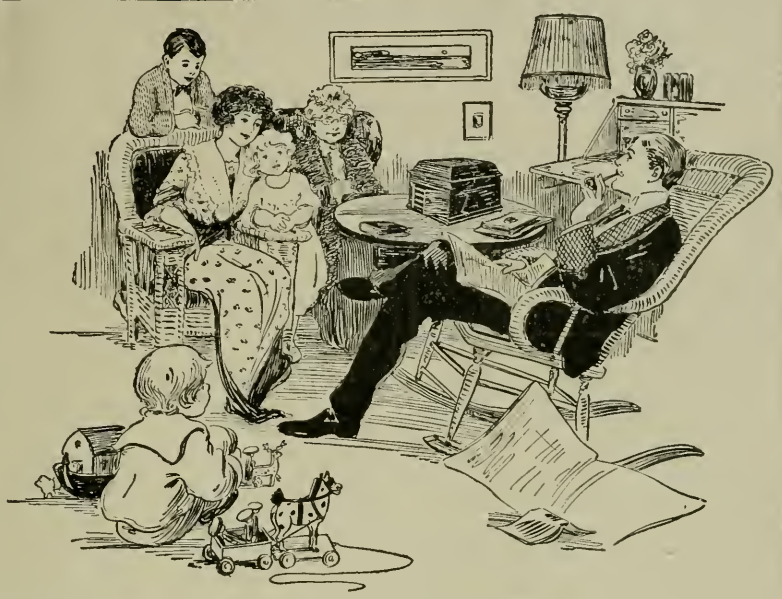
IT seems to be a well established clinical fact that calcium chloride is one of the most efficient drugs in the treatment as well as in the practical prevention of hay fever.

Emmerich and Loew of Germany first called attention to that use of this salt of calcium in 1913.

During 1915 Dr. Harold Wilson of Detroit, Mich., instituted a series of clinical experiments on twenty-six patients, all of whom had well established "hay fever histories," some also having a history of concurrent asthma.

A most interesting report of his clinical experience will be found in the issue of *The Journal of the American Medical Association*, dated March 4, 1916, to which we refer the readers for more complete data.

Twenty-two of the twenty-six "hay fever" patients, chosen at random for this experimentation, were treated exclusively with calcium chloride; the other four had been treated previously the same season with injections of "pollen solution"—but when the hay fever symptoms became more serious, were also given the calcium treatment; they are therefore grouped together with the twenty-two treated exclusively with calcium chloride, in the article above referred to. While in the



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Pleasure is the big thing with all of us. We crave for amusement—we want to share in the music and fun that bring delight to others.

With a Victrola in your home you can enjoy the world's best music and entertainment whenever you are in the mood to hear it.

We'll gladly demonstrate the Victrola and play any music you wish to hear—stop in any time.

Victrolas $15 to $200. Victors $10 to $100. Terms to suit—at cash prices.

COHEN & HUGHES, Inc.

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115 E. Baltimore Street **315 N. Howard Street**

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For your Tires, call **G. E. BLAYLOCK**, *The Boy with the RE-TIRE-ING Experience.* Ten years' practice has taught him how. Our work is best. Our price is less. **1811 N. Charles St.**, near North Ave. Send your Tires by Parcel Post. Phones—Mt. Vernon 701 and 702.

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Orthopaedic Shoemaking

Special Shoes for All Deformities of the Feet
Repair Work Received by Parcel Post

1734 E. PRATT STREET

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Electric Facial Massage, Scalp Treatment and General Massage. Outside Engagements by Appointment

2133 Madison Ave. BALTIMORE, MD.

series of cases treated and reported in 1913 by Emmerich and Loew, the calcium chloride treatment was kept up for a long time—as much as a whole year in some cases—Dr. Wilson did not administer this drug to any of his patients for a longer period than from eight to ten weeks before the expected annual attacks. In explanation of his method he says in the article above alluded to:

"Although it has been shown that the maximum calcium retention in the system occurs only after its prolonged ingestion, it remains to be proved that its optimum therapeutic effect in hay fever requires its daily use for a year before the expected attack. In some of the most favorable cases here reported, the relief secured came almost at once, or after taking at most only a few doses."

Among these interesting cases reported by Dr. Wilson are the following:

"Dr. W. A. K., aged 40, had had autumnal hay fever for fifteen years and slight asthma recently. July 7 calcium chloride was prescribed, 1 gm. three times a day. Patient reported in October that he had experienced only trifling symptoms at any time during the season."

"Miss C. S., aged 25, had had hay fever for nine years, beginning in early spring and lasting until the second week in October. She had asthma. Symptoms were marked June 30, the hay fever symptoms were distressing. * * * Calcium chloride 1 gm. was prescribed.

"September 25, the hay fever symptoms which were severe, disappeared after the second dose of the medicine. * * * During the summer she had occasional slight symptoms, which disappeared immediately when she took the medicine."

"Miss M. R., aged 24, had had autumnal hay fever seven or eight years; no asthma * * * June 11, calcium chloride was prescribed, 1 gm. three times a day, but owing to some gastric distress which it seemed to cause, the dose was much reduced for several weeks.

(Had she taken our Elixir Chloro-Calcium, this gastric distress would not have occurred. —S. & D.)

"* * * No hay fever symptoms were experienced until September 5, when there was slight sneezing and itching in the throat. During the rest of the season symptoms were practically absent."

Dr. Wilson's conclusions are:

"1. Some hay fever patients taking not less than 3 gm. of calcium chloride daily, even for a short time, are practically relieved from all hay fever symptoms.

"2. Calcium chloride may be taken in doses of 3 gm. daily for an indefinite time without any apparent injury.

"3. It is not indispensable in all cases for a hay fever patient to take calcium chloride over a long period of time in order to secure relief.

"4. Calcium salts may be given, even when the nature of the patient's sensitization is not known.

"5. The clinical results from the administration of calcium chloride in cases of hay fever are such as to warrant its further trial."

In this series of clinical experiments Dr. Wilson used the crystallized calcium chloride dissolved in distilled water. He calls attention to the fact that in some cases there was quite some gastric irritation as a result. This confirms the quite universal experience of the medical profession that this salt of calcium, when given in water, is quite liable to set up rather marked and always distressing gastric irritation.

It was with the view of eliminating entirely that serious objection to this salt of calcium

that, years ago, we began a series of laboratory experiments with calcium chloride.

Elixir Chloro-Calcium was the result.

One fluidrachm of this standardized solution presents five grains of pure calcium chloride.

It has a pleasant taste, is not astringent, does not induce or aggravate constipation, and *positively never disturbs the most sensitive stomach*, even when given for months consecutively.

Each dose should be administered *uncombined* in a wineglassful of water; it should not be compounded with other preparations. *Please note particularly that it is incompatible with carbonates, phosphates, sulphates and tartrates.*

In hay fever, either when it actually exists or is threatened, we earnestly recommend the administration of Elixir Chloro-Calcium in doses of from three teaspoonfuls to a tablespoonful, well diluted, three times a day, or oftener, if the urgency of the case requires more active medication.

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